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A Rain Garden Grows in Bridgeport

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A new rain garden has appeared in Bridgeport, Connecticut, facing Captain's Cove. It's not just any rain garden–it's a working demonstration garden that will help the school and the city cope with polluted runoff from greater rainfall due to climate change, and teach others about such gardens.

Sea level rise due to climate change is a reality; how much rise will occur is the only question. In addition, local precipitation patterns are also changing due to large scale climate changes. Average annual rainfall in Connecticut has been increasing through this century, at an average rate of about 1 inch every ten years. In addition, the intensity of rainfall events has been increasing in the region. Stormwater infrastructure (e.g. storm drains and culverts) in some of our older cities is already being overwhelmed; adding more frequent and more intense rains will only make the situation worse.

Bioretention areas have been used to reduce the impact of stormwater on local water bodies. Their use will become even more critical if current trends in precipitation patterns continue. The concept was developed as part of a Low Impact Development effort in Prince George's County, Maryland. In short, a bioretention area is a depression in the landscape that is designed to collect and infiltrate stormwater. Shrubs, herbaceous perennials and trees can be planted in them, and shredded hardwood mulch is usually applied to the surface. Pollutants in stormwater are trapped in the system, and are taken up by plants or adsorbed to soil and mulch particles. Bioretention systems contain an engineered soil mix, with an underdrain and overflow that are connected to the stormwater system. Typical applications include commercial areas, large parking lots, and other heavily developed areas.

A rain garden is essentially the same concept, but the design is simpler. Typically, native soils are used if they can take up a reasonable amount of water (usually at least 1 inch per hour). A "bowl" is excavated to a depth around 8 inches, plants are installed, and a mulch layer is added. Stormwater can either be directed overland to the rain garden, such as in a grass swale, or piped directly in from, for example, a roof drain. Overflow from the garden is typically to a grassy area. A rain garden design guide for homeowners in Connecticut can be found at this web site: http://nemo.uconn.edu/publications/rain_garden_broch.pdf. The rain garden project, coordinated by Juliana Barrett of Connecticut Sea Grant and Mike Dietz of UConn's NEMO program and Connecticut Sea Grant, was made possible by a grant from the National Sea Grant Office as part of the Sea Grant Coastal Communities Climate Adaptation Initiative.

This bioretention area was installed adjacent to the Bridgeport Aquaculture School building, located at 60 St. Stephens Rd. in Bridgeport. Both school and city officials are supportive of the project. Currently, all of the rain that falls on the building is piped directly into the stormwater system, and into the Long Island Sound, which is only a couple hundred feet away. As a result of this project, a portion of this water will be directed to the bioretention area, and will infiltrate into the ground. In addition, the bioretention will improve the aesthetics of the area with a beautifully landscaped garden. Although this impact may seem small when you consider how many roofs there are in Bridgeport, it is a measureable difference, and, when added together, many small rain gardens can make a big difference.

Mike Dietz is the Connecticut NEMO Coordinator.

J. Barrett

The rain garden, after initial planting on the aquaculture school property in October 2010.